

REMARKS

Applicants respectfully request reconsideration. Claims 1-75 were previously pending in this application. By this amendment, claims 1 and 23 have been amended for clarification. No claims have been canceled or added. As a result, claims 1-75 are pending for examination with claims 1, 28, 49, and 67 being independent claims. No new matter has been added.

Summary of Telephone Conference with Examiner

Applicants wish to thank Examiner Noori for the opportunity to conduct a telephone interview with Neil Ferraro and Shannon Pratt on April 20, 2005. During the interview, the claim rejections in view of all three applied references were discussed. The substance of the discussion is incorporated into the following remarks.

Also discussed was amending independent claim 1 for further clarification. Following the telephone interview, on April 20, 2005, Applicants faxed the Examiner a proposed amendment to claim 1 for review. A copy of the fax is attached. On April 26, 2005, Applicants followed up with the Examiner on the telephone, and the Examiner agreed that the proposed amendments to claim 1 would place the application in condition for allowance.

Amendments to the Specification

The Examiner contends that the title of the invention is not descriptive, requiring a new title that is clearly indicative of the invention to which the claims are directed. Applicants have amended the title to "A SENSOR WITH A PLURALITY OF SENSOR ELEMENTS ARRANGED WITH RESPECT TO A SUBSTRATE" to address the Examiner's concern.

Applicants also amended the specification to correct minor typographical errors. Support for each amended paragraph may be found within Figs. 1 and 7. No new matter has been added.

Allowable Subject Matter

Applicants gratefully acknowledge the Examiner's finding that claims 67-75 are allowed and that claims 2-15, 17-19, 21-48, 51, 52, 54-57, 59-61, and 63-66 would be allowable if rewritten in independent form to include all of the limitations of their respective base claims and

any intervening claims. Applicants have not rewritten the allowable claims in independent form, because they depend from claims believed to be allowable, as discussed below.

Rejections Under 35 U.S.C. §102

Rejections in View of Sheen

Independent claim 1 and dependent claim 16, stand rejected under 35 U.S.C. §102(b) as being anticipated by Sheen (U.S. Patent No. 5,578,930). Claim 1 has been amended to further clarify the claim language.

As amended, independent claim 1 is directed to a sensor, comprising, *inter alia*, at least one substrate layer, a plurality of individual sensor elements operatively arranged with respect to the substrate layer, and a first and second conductive trace disposed on the substrate layer. Each conductive trace is electrically coupled to at least one sensor element, with each conductive trace *spiraling inwardly toward and wrapping at least partially around* the at least one sensor element in a spiral-like pattern.

Sheen discloses a manufacturing defect analyzer for testing components 102 on a printed circuit boards 100. A sensor 104 is mounted above a component 102, and each sensor is used to either create a magnetic field or an electric field through the component 102 to determine whether the component is properly connected to the circuit board.

In the Office Action, the Examiner refers to Fig. 2 and contends that Sheen discloses conductive traces configured in a spiral form. Fig. 2 illustrates a schematic view of a portion of one of the sensors 104. As described in Sheen, in Fig. 2, the sensor 104 is made up of groups of spiral loop antenna elements. As discussed during the interview, these spiral antenna elements are used to generate a magnetic field and do not extend *around* any sensor element. Sheen therefore does not disclose a conductive trace being spaced out from and extending at least partially *around* a sensor element, as recited in original claim 1. However, the Examiner construed original claim 1 to encompass a sensor that includes conductive traces extending in a spiral-like pattern anywhere on the sensor and not specifically to include conductive traces extending *around* a particular sensor element on a sensor. To further clarify, Applicants have amended claim 1 to recite that the conductive trace spirals inwardly toward and wraps at least partially around at least one sensor element in a spiral-like pattern. As discussed above, the

Examiner indicated that the amendment to claim 1 would place it and the claims depending therefrom in condition for allowance.

Therefore, it is respectfully requested that the Examiner withdraw the rejection of claim 1 in view of Sheen, as the prior art fails to teach at least these recitations of claim 1. Claim 16, depending on claim 1, is allowable for at least the same reasons.

Rejections in View of Gooch

Independent claim 1 and dependent claims 16 and 20, stand rejected under 35 U.S.C. §102(e) as being anticipated by Gooch (U.S. Patent No. 6,690,014). As discussed above, claim 1 has been amended to clarify that the conductive trace spirals inwardly toward and wraps at least partially around at least one sensor element in a spiral-like pattern.

Gooch is directed to a microbolometer (a type of infrared detector) that senses the difference in thermal radiance of various objects. In particular, Gooch discloses a detector 12 suspended over a substrate 11 by electrode arms 14. Infrared radiation sensed by the detector 12 results in a measurable change in the resistance of the material of the detector 12.

In the Office Action, the Examiner looks to Fig. 14b and asserts that Gooch discloses all of the claimed features of claim 1. Applicants respectfully disagree. Figs. 11 and 14b of Gooch illustrate an alternative embodiment where the electrode arms 14 are replaced with spiral arms 100. Gooch states that the spiral arm 100 configuration is used to provide a higher fill factor and also to provide a more stressed-tolerant microbolometer. As shown in Fig. 14b, in the spiral arm configuration, the detector membrane may be essentially a continuous sheet with openings for the spiral arms. This configuration provides a higher fill-factor by providing a larger detector area for a given surface area. As discussed during the interview, the Examiner's rationale for this rejection is in view of the interpretation of original claim 1 encompassing a sensor having conductive traces extending in a spiral-like pattern anywhere on the sensor. However, as discussed above, Applicants have amended claim 1 only to clarify what was originally intended by the claim as filed, namely that the conductive trace spirals around the sensor element. As discussed above, the Examiner indicated that this amendment to claim 1 would place it and the claims depending therefrom in condition for allowance.

Therefore, it is respectfully requested that the Examiner withdraw the rejection of claim 1 in view of Gooch, as the prior art fails to teach at least these recitations of claim 1. Claims 16 and 20 depending on claim 1, are allowable for at least the same reasons.

Rejections in View of Ogle

Independent claim 49 and dependent claims 50, 53, and 58 stand rejected under 35 U.S.C. §102(b) as being anticipated by Ogle (U.S. Patent No. 3,989,981). Applicants respectfully traverse these rejections.

Applicants note that claim 53 actually depends on claim 52, which the Examiner indicated was allowable. Applicants also note that although claim 62 is generally listed as being rejected, that it is not listed specifically in any rejection. Because claim 62 depends from claim 49, Applicants have assumed that the Examiner meant for this rejection to include dependent claims 50, 58, and 62.

Independent claim 49 is directed to a sensor array, for measuring a desired parameter, comprising, *inter alia*, at least one substrate layer, a plurality of individual sensor elements operatively arranged with respect to the substrate layer, and a plurality of conductive traces connecting the sensor elements. Each sensor element is in direct electrical contact with at least one respective conductive trace, and the individual sensor elements define a sensor plane. A plurality of slits are formed in the substrate layer, arranged between each adjacent sensor element, to permit a sensor element to move perpendicular to the sensor plane.

Ogle is directed to a panel type display device which includes a number of light producing gas-filled cells arranged in rows and columns. The cells 50 are formed between a plurality of flat glass or ceramic plates 20, 30, 40, and certain cells are filled with a gas capable of sustaining a cathode glow. The cells are selectively energizable to display a character or message in the display device. When an electric potential is applied, the cells containing the gas glow to display the desired message.

As discussed during the interview, the Ogle reference fails to disclose all of the features of claim 49. As an initial matter, claim 49 recites a sensor array for measuring a desired parameter. However, Ogle does not disclose a sensor array. There is nothing in the Ogle device that measures any parameter. Rather, the Ogle device is more analogous to a light bulb that is either turned on or turned off to emit a glow from selected cells.

During the interview, the Examiner agreed to withdraw the rejection in view of Ogle. Therefore, it is respectfully requested that the Examiner withdraw the rejection of claim 49 in view of Ogle, as the prior art fails to teach at least these recitations of claim 49. Claims 50, 58, and 62 depending on claim 49, are allowable for at least the same reasons.


CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,

By:



Neil P. Ferraro, Reg. No. 39,188
Shannon Pratt, Reg. No. 55,548
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2206
Telephone: (617) 646-8000

Docket No.: S0687.70013US00
Date: May 5, 2005
x05/21/05x

U.S. Application Serial No. 10/748,718

Our File No. S0687.70013US00

Art Unit: 2855

Examiner Max Noori

Proposed Claim Amendment

1. (Currently Amended) A sensor, comprising:
at least one substrate layer;
a plurality of individual sensor elements operatively arranged with respect to the substrate layer; and
a first and second conductive trace disposed on the substrate layer, each conductive trace electrically coupled to at least one sensor element and each conductive trace [being spaced out from and extending] spiraling inwardly toward and wrapping at least partially around the at least one sensor element in a spiral-like pattern.